

---

BY THE COMPTROLLER GENERAL      RELEASED  
Report To The Honorable  
Eugene A. Chappie  
House Of Representatives  
OF THE UNITED STATES

---

## Skewed Bidding Presents Costly Problems For The Forest Service Timber Sales Program

The practice of skewed bidding--in which a bidder in a multispecies timber sale attributes most of the total bid value to one species and bids the minimum price on the other species in the sale--has been widespread in the Forest Service's three western regions, is continuing, and has caused costly problems for the Service's timber sales program. At the 11 western national forests GAO reviewed, about \$1.9 million in sales revenues was forgone on skewed bid timber sales closed during the last 2 fiscal years for which data was available--1980 and 1981. The Service must devote administrative resources to deal with harvest management problems caused by skewed bidding. The Service could reduce these problems by modifying its sales procedures to control skewed bidding.



120572

GAO/RCED-83-37  
FEBRUARY 9, 1983

524601

**Request for copies of GAO reports should be sent to:**

**U.S. General Accounting Office  
Document Handling and Information  
Services Facility  
P.O. Box 6015  
Gaithersburg, Md. 20760**

**Telephone (202) 275-6241**

**The first five copies of individual reports are free of charge. Additional copies of bound audit reports are \$3.25 each. Additional copies of unbound report (i.e., letter reports) and most other publications are \$1.00 each. There will be a 25% discount on all orders for 100 or more copies mailed to a single address. Sales orders must be prepaid on a cash, check, or money order basis. Check should be made out to the "Superintendent of Documents".**



COMPTROLLER GENERAL OF THE UNITED STATES  
WASHINGTON D.C. 20548

B-207845

The Honorable Eugene A. Chappie  
House of Representatives

Dear Mr. Chappie:

This report discusses the results of our review of the use of and problems created by skewed bids on the Department of Agriculture's Forest Service timber sales program. This report supplements our June 23, 1982, report on the Service's timber sale practices on the Plumas National Forest (GAO/CED-82-88) made in response to your request of December 10, 1980.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 3 days from the date of the report. At that time we will send copies of the report to the Director, Office of Management and Budget; the Secretary of Agriculture; and other interested parties. We will also make copies available to others upon request.

Sincerely yours,

A handwritten signature in cursive script that reads "Milton J. Fowler".

Acting Comptroller General  
of the United States



D I G E S T

Skewed bidding, a method by which a bidder on a multispecies timber sale attributes most of its bid to a single species and bids the minimum price for the other species, has caused the Department of Agriculture's Forest Service costly problems, among which are reduced sales revenues and difficulties in timber harvest management. GAO's detailed reviews of timber sales involving skewed bids at 11 of the 52 national forests in the Service's three western regions (Northern, Pacific Southwest, and Pacific Northwest) showed that skewed bidding has been widespread in the West and is continuing. An example of a skewed bid can be found on pages 5 and 6.

GAO identified several actions the Service needs to take to control the use of skewed bids in the future and reduce the adverse effects in sales where they were used.

GAO made the review at the request of Congressman Eugene A. Chappie.

WHY BIDDERS MAKE SKEWED BIDS

Bidders make skewed bids to take advantage of possible inaccuracies in the Service's presale estimates of individual timber species volumes. Because the actual price paid is determined by the volume of each species cut and removed from the forest, a purchaser who skews a bid can pay less than the amount bid if the Service has overestimated the volume of the skewed bid species and/or underestimated the volume of other species. Skewed bidding can increase the apparent value of a bid and reduce the Service's ability to select a bid which will return the most revenue to the Federal Government. (See pp. 4 to 7.)

The Service's presale timber cruise (survey to estimate timber volume) is designed to estimate the total timber volume expected to be harvested on a sale rather than the volumes of individual timber species. Even when the presale estimate for a sale in total is reasonably accurate, the estimates for individual timber species are often inaccurate. For minor volume species such as

incense-cedar, some presale estimates differed from the harvested volumes by 50 percent or more. The accuracy standard used by the Service's timber staff for presale volume estimates is plus or minus 10 to 15 percent for the total sale. Improving the accuracy of presale volume estimates is possible but could require substantial increases in personnel assigned to presale timber cruises. (See pp. 7 and 8.)

SKEWED BIDDING REDUCES  
FOREST SERVICE REVENUES

GAO reviewed sales data for fiscal years 1980 and 1981--the latest available annual data. Of the 3,577 sales of \$2,000 or more awarded in the three western regions during these fiscal years, 755 involved skewed bids.

At the 11 national forests where GAO reviewed sales in detail, 119, or 21 percent, of the 562 sales of \$2,000 or more whose harvests were completed in fiscal years 1980 and 1981 involved skewed bids. Moreover, timber sales awarded on the 11 forests during these fiscal years showed a continuing use of skewed bidding. Of the 661 new sales of \$2,000 or more, 201, or 30 percent, involved skewed bids. (See pp. 8 to 10.)

To assess the impact of skewed bidding on Service revenues, GAO reviewed the winning and losing bids on the 119 sales involving skewed bids at the 11 forests. GAO compared the revenues actually received from the winning bidders with the revenues which would have been received from losing bidders if their bid rates had been applied to the harvested volumes. Of the 119 sales, 33 would have returned about \$2.9 million more revenue to the Federal Government if the highest of the losing bids had been selected. On nine other sales revenues were increased \$930,000 because the species that was skewed bid was overcut. The net revenues forgone on these 42 sales was \$1.9 million. On the other 77 sales, GAO could not determine the impact on sales revenues because bidders skew bid the same species and/or species on the sales were harvested in about the same proportion as the Service's presale estimates. (See pp. 10 and 11.)

GAO did not attempt to estimate the sales revenues forgone Service-wide. According to the Service, skewed bidding is essentially confined to its three western regions.

HARVESTING METHODS ON SALES  
WITH SKEWED BIDS AFFECT REVENUES

Because failure to harvest, or damage to, the species of trees which were skewed bid can reduce sales revenues substantially, timber management staff must devote more time to onsite monitoring of skewed bid sale harvests. Also, timber harvesting on a species-by-species basis allows purchasers to leave the high-value trees until the end of the harvest, delaying the payment of the higher sales prices. In some cases purchasers have failed to harvest the trees of the species involving the skewed bid. (See pp. 11 to 14.)

FOREST SERVICE HAS TRIED  
TO CONTROL SKEWED BIDDING

Although skewed bidding affects the Service's three western regions, most Service efforts to control the practice have occurred at the individual region or forest levels rather than programwide. The three western regions have restricted bidding on minor species by setting various minimum volume bidding criteria. In addition, one region has established a bid premium distribution procedure which limits the amount of bid premium (the amount bid in excess of the Service's appraised value) that can be placed on a single species.

GAO found that restricting bidding to species with more than 10 percent of the sale volume had limited effect. GAO also found that large skewed bids continued to occur even with the bid premium distribution procedure used in the one region. This was because the bid premium had not been distributed in proportion to the volumes and values of the individual species in the sales. (See pp. 14 to 16.)

HOW OTHER TIMBER SELLERS  
CONTROL SKEWED BIDDING

State forestry departments in California, Oregon, and Washington and the Department of the Interior's Bureaus of Indian Affairs and Land Management have adopted policies which they believe control skewed bidding on their timber sales.

These timber sellers have used three techniques: a bid premium distribution, a tree-measurement sales method, and a restriction of bidding to

species representing an established minimum percentage of the total sale volume. The first two of these--complete proportional distribution of bid premium among all species on a sale and the tree-measurement sales method--both eliminate skewed bidding. However, the Service has not resolved several concerns raised by the timber industry about using the tree-measurement method in the western forests, particularly the concern about the Service's ability to accurately estimate the volume of wood in old-growth timber stands. The third technique, restricting bidding to specific large volume species, precludes neither skewed bidding nor financial risks to the Service during harvests because the bid premium is not distributed among all the species. (See pp. 16 to 18.)

#### RECOMMENDATIONS TO THE SECRETARY OF AGRICULTURE

GAO recommends that the Secretary of Agriculture direct the Forest Service to control the use of skewed bids on future timber sales. In the short term, for example, the Service could adopt a bid premium distribution procedure whereby the total bid premium on a timber sale would be spread among the species offered for sale in proportion to the volumes and values of the individual species. In the long term, the Service could require adoption of the fixed-price, lump-sum, tree-measurement sales method once the industry's concerns about this method are resolved to the Service's satisfaction.

GAO also recommends that to reduce the adverse effects of past skewed bid sales, the Secretary require the Service to prohibit logging on a species-by-species basis on skewed bid sales. (See p. 19.)

#### AGENCY COMMENTS

The Forest Service said that GAO's report fairly and accurately treats the skewed bidding issue. The Service agreed that national direction is appropriate to control the use of skewed bidding on future timber sales and to reduce the adverse effects of past skewed bidding on existing sales. (See app. II.)

Also, Service officials told GAO that the Service plans to issue instructions to its field staff which will require concurrent harvesting of all species on skewed bid sales. (See p. 19.)

C o n t e n t s

		<u>Page</u>
DIGEST		i
CHAPTER		
1	INTRODUCTION	1
	Skewed bidding	1
	Objectives, scope, and methodology	1
2	THE USE OF SKEWED BIDS PRESENTS COSTLY PROBLEMS FOR THE FOREST SERVICE TIMBER SALES PROGRAM	4
	Why bidders make skewed bids	4
	Skewed bidding has occurred on many timber sales in the West	8
	Skewed bidding reduces Forest Service timber sales revenues	10
	Harvesting methods on skewed bid sales affect revenues	11
	Forest Service has tried to control skewed bidding	14
	How other timber sellers control skewed bidding	16
	Possible sale techniques to control skewed bidding	16
	Conclusions	18
	Recommendations to the Secretary of Agriculture	19
	Agency comments	19
APPENDIX		
I	Private timber companies, timber industry trade associations, lumber mills, and loggers we contacted	20
II	Letter dated November 18, 1982, from the Acting Chief, Forest Service, Department of Agriculture	21
	<u>ABBREVIATIONS</u>	
GAO	General Accounting Office	
MBF	Thousand board feet	



## CHAPTER 1

### INTRODUCTION

Congressman Eugene A. Chappie asked us to examine the use of skewed bids on timber sales of the Department of Agriculture's Forest Service. Skewed bidding occurs when a bidder in a multi-species sale loads most of the bid value on a single tree species and offers the minimum price for the other species. We reviewed timber sales in the Service's three western regions where multi-species sales are common and skewed bidding occurs.

#### SKEWED BIDDING

The use of skewed bidding on Forest Service timber sales has raised questions about whether the amounts bid on timber sales will actually be received as Federal Government revenues. Bidders make skewed bids to take advantage of possible inaccuracies in the Service's volume estimates of the individual timber species. The Service is paid for timber that is actually cut and hauled out of the forest. Thus, a bidder using a skewed bid can bid a high price for a species whose volume is overestimated and low prices for species whose volumes are underestimated and end up paying less than the total amount bid for the timber sale. This can occur even when the total timber volume cut exceeds the original Service estimate.

According to Service timber managers, skewed bidding occurs on sales in the West. Timber sales must involve more than one timber species in order to permit skewed bidding. Timber sales in eastern and southern forests composed entirely of pine cannot be skewed bid, while many western forests are multispecies forests and sales can involve skewed bids.

#### OBJECTIVES, SCOPE, AND METHODOLOGY

Our objectives in this review were to assess the

- reasons for and extent of skewed bidding, 1/
- impact of skewed bids on timber sales revenues and on timber harvest management, and
- options available to curb skewed bidding.

---

1/As used in this report, a skewed bid is a bid with all of the premium on a single species while the other species on the sale are bid at the minimum allowed by the Forest Service. Premium is the amount bid in excess of the Service's appraised value.

We made the review in accordance with generally accepted government audit standards. We reviewed the regulations and procedures relating to Service timber sales. We interviewed Service officials at headquarters, regional offices, and the national forests; discussed with officials in the Department of the Interior's Bureaus of Indian Affairs and Land Management and in the Department of the Treasury's Internal Revenue Service their handling of skewed bid sales; and contacted California, Oregon, and Washington State officials involved in forestry and timber taxation. We also discussed Forest Service timber sales practices with officials of private timber companies, timber industry trade associations, lumber mills, and loggers. (See app. I.)

We selected the following 12 national forests in the Service's three western regions for detailed review. Altogether the three regions contain 52 national forests.

<u>Northern-- Region 1</u>	<u>Pacific Southwest-- Region 5</u>	<u>Pacific Northwest-- Region 6</u>
St. Joe	Lassen	Siskiyou
Kaniksu	Tahoe	Rogue River
Coeur d'Alene	Stanislaus	Fremont
	Shasta	
	Trinity	
	Mendocino	

Our selections in region 6 were based on the suggestion of regional officials. In the other regions we used one or more of the following criteria to select the national forests.

- Number of skewed bid sales in fiscal year 1981, the latest annual data available at the time of our review, so as to include national forests experiencing such bidding.
- Special problems or actions taken as a result of skewed bids.
- Size of the timber sales program to include national forests with small, medium, and large programs.

Our selection was not made on a statistical basis and therefore the results are not projectable. However, we believe that the results of our work demonstrate a programmatic condition that requires management attention.

At the Fremont National Forest we found that skewed bidding had only recently begun. Lacking data on completed sales, no analysis of the impact of skewed bidding on this forest was possible. At the other 11 national forests we gathered and reviewed information on the

- number of skewed bid sales completed and awarded in fiscal years 1980 and 1981--the most recent annual data available,

- actual volumes cut on skewed bid sales,
- actions taken to monitor or control the harvest on skewed bid sales,
- problems related to skewed bidding, and
- Forest Service policies to control bid practices.

In addition, we reviewed timber sale summary reports covering all national forests in the three regions to identify how extensive skewed bidding was in these regions. We also contacted the Department of Agriculture's Office of the Inspector General and were told no reviews of skewed bidding on the Service's timber sales had been made because of limited staffing and other priorities. However, the Office of the Inspector General planned to start a review of timber sales activities, including skewed bidding, in the St. Helen's volcanic area in late 1982.

## CHAPTER 2

### THE USE OF SKEWED BIDS PRESENTS COSTLY PROBLEMS FOR THE FOREST SERVICE TIMBER SALES PROGRAM

We found that skewed bidding has been widespread in Forest Service timber sales in the West. Of 3,577 sales of \$2,000 or more awarded during fiscal years 1980 and 1981 in the three regions reviewed, 755 were awarded based on skewed bids. At the 11 national forests whose sales we reviewed in detail, 119 skewed bid sales of \$2,000 or more were completed during fiscal years 1980 and 1981. About \$2.9 million in sales revenues was lost on 33 of the 119 skewed bid sales. The losses were partially offset by increased revenues of \$930,000 on 9 of the 119 sales where the skewed bid species was overcut. On the remaining 77 sales, skewed bidding had no apparent effect on sales revenues. Skewed bid sales necessitate additional Service supervision during harvest activities to protect the Federal Government's interest.

The Service had taken only limited action to control skewed bidding because of timber industry support for the practice and the lack of meaningful examples of any bad effect. According to Service timber managers, the Service did not consider skewed bidding to be a major concern before the late 1970's because it was occurring relatively infrequently on a few national forests. With escalating timber prices and increasing competition for Service timber in the 1970's, skewed bidding began to occur more frequently and on more forests. However, because Service timber sales are generally not completed until several years after award, the Service lacked enough data on skewed bid sales to demonstrate a significant bad effect. Therefore, rather than prohibiting the practice, the Service left it to its regions to control skewed bidding.

The three regions have tried to control skewed bidding by establishing minimum volumes for a species to be biddable, and at some national forests the regions have limited the bid that can be placed on a single tree species. Other techniques that have been used by timber sellers or could be used to control skewed bidding include (1) spreading the total bid premium among the species offered for sale in proportion to their volumes and values and (2) selling timber on a fixed-price, lump-sum, tree-measurement basis. Although the Service's past efforts to control skewed bidding have had some effect, the problem remains largely unresolved. Additional action is needed if skewed bidding is to be controlled.

#### WHY BIDDERS MAKE SKEWED BIDS

According to Service regulations, advertised timber normally is to be awarded to the highest bidder upon satisfactorily showing the ability to meet financial requirements and other sale

conditions. The highest bid is determined by multiplying the Service's volume estimates by the rate per thousand board feet (MBF) bid for each species and arriving at an aggregate bid. However, the actual price paid is determined by multiplying the bid rate for each species by the actual volume of each species cut and removed from the forest. In a skewed bid, the bidder expects the actual price paid to be lower than the bid price because the Service has either overestimated the volume of the skewed bid species and/or underestimated the volume of the other species. Thus, the effect of skewed bidding is to increase the bid's apparent value and to reduce the Service's ability to select the bid which will return the most revenue to the Federal Government.

The advantages of skewed bidding to the buyer are illustrated by the Badger Mountain timber sale in the Lassen National Forest in California. Although the loss of sales revenue is larger than on most sales we reviewed, the Badger Mountain sale shows how a purchaser used a skewed bid to increase the bid's apparent value and thus win the sale. This sale was one of Lassen's 23 skewed bid sales on which timber harvesting was completed in fiscal years 1980 and 1981. It was a sale of about 13.7 million board feet of green timber (healthy trees), a sale slightly smaller than the average green sale for Lassen. The following table summarizes the bidding on the Badger Mountain sale.

Badger Mountain Timber Sale: Revenue That Would Be Generated At  
Bid Prices Using Estimated Volumes To Be Harvested

Species	Volume estimate (MBF)	Prices bid per MBF				Expected revenues from the sale			
		Appraised	Bid A (note a)	Bid B	Bid C	Appraised	Bid A	Bid B	Bid C
Ponderosa pine	8,450	\$87.42	\$ 87.42	\$186.00	\$206.00	\$ 738,699	\$ 738,699	\$1,571,700	\$1,740,700
Sugar pine	3,350	87.82	87.82	249.50	195.00	294,197	294,197	835,825	653,250
Firs	1,040	67.50	67.50	100.00	67.50	70,200	70,200	104,000	70,200
Incense-cedar	870	73.63	1,770.50	150.00	162.00	64,058	1,540,335	130,500	140,940
Total	<u>13,710</u>					<u>\$1,167,154</u>	<u>\$2,643,431</u>	<u>\$2,642,025</u>	<u>\$2,605,090</u>

a/Winning bid.

As the table shows, bidder A offered the highest aggregate amount for the timber on the Badger Mountain sale. Bid A is \$1,406 higher than bid B and \$38,341 higher than bid C. Most of the bid value in bid A is loaded onto incense-cedar, a minor 1/ volume species for which bidder A offered \$1,770.50 per MBF--far

---

1/We defined a minor species as one which represents less than 25 percent of a timber sale's total volume in the presale volume estimate.

above the \$193.09 market value of an average mix of manufactured incense-cedar lumber products and the \$73.63 Service-appraised value of incense-cedar. Bidder A offered the minimum possible prices for ponderosa pine, sugar pine, and firs. For these species, bidder A offered only the Service's appraised rates--the legal minimum rates which all bidders must offer for a bid to be responsive. In contrast, the other bidders spread their bids more evenly among the different species and bid closer to the species' actual average market values at time of harvest completion of \$85 to \$195 per MBF.

The following table shows what happened when the Badger Mountain sale was actually harvested. The volume of incense-cedar harvested was about 13 percent less than the estimated volume the Service used in calculating the winning bid. On the other hand, the volumes of two of the other tree species harvested were substantially higher than the volumes the Service estimated--and bidder A paid only the minimum price for this timber. In summary, the total price bidder A paid for the timber actually harvested was \$2.6 million. If the Service had selected bid B (the higher of the other two bids) and the same volumes had been harvested, it would have received \$2.9 million in revenues from the Badger Mountain sale, or \$327,000 more than it received from bid A.

Badger Mountain Sale: Revenue Generated At Bid Prices

Using Actual Volumes Harvested

<u>Species</u>	<u>Actual volume</u> (MBF)	<u>Prices bid per MBF</u>				<u>Revenue from sale based on actual harvest</u>		
		<u>Appraised</u>	<u>Bid A</u> (note a)	<u>Bid B</u>	<u>Bid C</u>	<u>Bid A</u>	<u>Bid B</u>	<u>Bid C</u>
Ponderosa pine	9,666	\$87.42	\$ 87.42	\$186.00	\$206.00	\$ 845,037	\$1,797,950	\$1,991,278
Sugar pine	3,364	87.82	87.82	249.50	195.00	295,387	839,206	655,892
Firs	1,614	67.50	67.50	100.00	67.50	108,975	161,445	108,975
Incense-cedar	754	73.63	1,770.50	150.00	162.00	1,334,815	113,088	122,135
<b>Total</b>	<b>15,398</b>					<b>\$2,584,214</b>	<b>\$2,911,689</b>	<b>\$2,878,280</b>

a/Winning bid.

The Badger Mountain sale was typical of many skewed bid sales we reviewed in that the bid premium was loaded on incense-cedar, a minor volume species which bidders know the Service frequently overestimates. Additionally, incense-cedar is often subject to extensive defects which substantially reduce the merchantable volume of the species that can be harvested. The skew bidder may also have believed that the Service underestimated the higher volume species, pine and fir. By bidding the minimum appraised rate for the higher volume species, the skew bidder was able to obtain this timber at a very low unit price--far below market value.

Another Lassen sale--the Trail salvage sale--provides an example of a skew bidder's potential gains from bidding the minimum appraised value on a major volume species with the expectation that it will be significantly overcut. This expectation can present an advantage to the skew bidder if other species' harvested volumes are close to their advertised volumes because the winning bidder is selected based on the rates and volumes offered in the aggregate. On this sale which covered three species, the skew bidder's expectations were realized because the major volume species was significantly overcut while both of the other species' harvested volumes were only slightly more than the Service's estimates. The low bid major volume species was overcut by 400 percent. The other species on the sale with over 100 MBF was overcut by less than 10 percent. No premium was collected in relation to the major overcut. The second bidder who offered rates fairly evenly spread among the species would have paid the Service about \$625,000 more than the skew bidder if this offer had been accepted and if the same volumes of each species had been harvested.

Unfortunately, in cases where bidding is unbalanced, the Service is unable to distinguish the true high bidder because of the uncertainty of its volume estimates and the skewing of bids. On timber sales like the Badger Mountain and Trail salvage sales where bidders skew bids on different species, the Service cannot accurately determine whether the bid selected will return the most revenue to the Government. Only if all bidders place skewed bids on the same species can the Service identify and select the true high bid because changes in the volumes harvested will have similar effects on all bids.

#### Forest Service volume estimates on individual species are uncertain

The uncertainty of the Service's estimates of timber volumes of individual tree species is the critical factor that makes skewed bids advantageous to the skew-bidding buyers. The Service's presale timber cruise (survey to estimate the timber volume) is designed to estimate the total timber volume expected to be harvested on a sale, rather than the volumes of the individual species. Thus, even when the presale estimate of the total volume is reasonably accurate, the estimates for individual timber species can vary considerably. This is especially true for minor volume species where some presale estimates have differed from the harvested volumes by 50 percent or more.

To test the accuracy of the Service's presale volume estimates for minor volume species, we selected a sample of 22 of the 105 Lassen National Forest sales closed during fiscal years 1980 and 1981. We selected these sales, which included both skewed bid and nonskewed bid sales, because they represented some of the Service's more accurate presale timber volume estimates. In each of these sales, the total volume harvested was within 15 percent of the presale estimate. However, on eight sales (36 percent) the harvested volumes of a minor species varied from presale

estimates by more than 50 percent. Presale volume estimates for incense-cedar were especially inaccurate. Cedar was a minor species in 18 of the 22 sales and, as the following table shows, the harvested volumes of cedar varied by 20 percent or more from the presale estimates on 14 of the 18 sales.

Accuracy of Presale Volume Estimate Versus Harvested  
Volume of Incense-Cedar on 18 Lassen Timber Sales

<u>Variation</u>	<u>Number of sales</u>	
	<u>Overestimated</u>	<u>Underestimated</u>
50 percent or more	3	0
40 to 49 percent	3	0
30 to 39 percent	2	0
20 to 29 percent	4	2
10 to 19 percent	3	0
10 percent or less	<u>1</u>	<u>0</u>
Total	<u>16</u>	<u>2</u>

Service timber managers told us that presale timber cruises are not designed to provide accurate volume estimates on a timber species basis. They said that the presale cruises are designed to provide reasonably accurate volume estimates only for the total sale volume and for the primary timber species in the sale.

Service timber managers told us that the commonly accepted accuracy standard for all species harvested in the aggregate is plus or minus 10 to 15 percent. At the time of our review, Forest Service Region 5, which covers California, was considering establishing new sampling standards to improve volume estimates for individual timber species. However, timber managers at the national forest level in region 5 told us that staffing for presale cruises would have to be doubled or tripled to satisfy the proposed sampling standards.

SKEWED BIDDING HAS OCCURRED ON MANY  
TIMBER SALES IN THE WEST

Of the 3,577 timber sales of \$2,000 or more in regions 1, 5, and 6 during fiscal years 1980 and 1981, 755 (21 percent) were awarded to purchasers submitting a skewed bid. Service staff told us that skewed bids were infrequent before the 1970's. They said that in the early 1970's competition for Service timber began to increase and bidders began to make more use of skewed bids. At 11 of the 12 national forests we reviewed, 119, or 21 percent, of the sales whose harvests were completed in 1980 and 1981 were skewed bid sales, as the table on the following page shows.

Skewed Bid Timber Sales Completed in  
Fiscal Years 1980 and 1981 (note a)

<u>National Forest</u>	Total sales (note b)	Skewed bid sales (note c)	
		<u>Number</u>	<u>Percent</u>
Rogue River	97	17	18
Siskiyou	92	21	23
Lassen	105	23	22
Mendocino	26	6	23
Shasta-Trinity (note d)	83	22	27
Stanislaus	29	3	10
Tahoe	16	7	44
Idaho Panhandle (note e)	<u>114</u>	<u>20</u>	18
Total	<u>562</u>	<u>119</u>	21

a/These sales were awarded during fiscal years 1971 to 1981.

b/Sales of \$2,000 or more whose harvests were completed in fiscal years 1980 and 1981.

c/Skewed bid sales are defined as sales in which the winning bidder placed the entire bid premium (the difference between the Service's appraised rate per thousand board feet and the bid rate) on a single species.

d/Two national forests (Shasta and Trinity) combined for administrative purposes.

e/Three national forests (St. Joe, Kaniksu, and Coeur d'Alene) combined for administrative purposes.

New timber sales awarded during fiscal years 1980 and 1981 showed a continuing use of skewed bidding. At 11 of the 12 national forests we reviewed, 201, or 30 percent, of the new sales awarded in fiscal years 1980 and 1981 were skewed bid sales, as the table on the following page shows.

New Skew Bid Timber Sales Awarded  
in Fiscal Years 1980 and 1981

<u>Forest</u>	<u>Total sales (note a)</u>	<u>Skewed bid sales (note b)</u>	
		<u>Number</u>	<u>Percent</u>
Rogue River	132	36	27
Siskiyou	107	9	8
Lassen	61	25	41
Mendocino	24	12	50
Shasta-Trinity (note c)	132	34	26
Stanislaus	37	17	46
Tahoe	47	16	34
Idaho Panhandle (note d)	<u>121</u>	<u>52</u>	43
<b>Total</b>	<b><u>661</u></b>	<b><u>201</u></b>	<b>30</b>

a/Sales of \$2,000 or more which were awarded in fiscal years 1980 and 1981.

b/Skewed bid sales are defined as sales in which the winning bidder placed the entire bid premium (the difference between the Service's appraised rate per thousand board feet and the bid rate) on a single species.

c/Two national forests (Shasta and Trinity) combined for administrative purposes.

d/Three national forests (St. Joe, Kaniksu, and Coeur d'Alene) combined for administrative purposes.

SKEWED BIDDING REDUCES FOREST  
SERVICE TIMBER SALES REVENUES

To assess the impact of skewed bidding on the Service's timber sales revenues, we reviewed the winning and losing bids on the 119 skewed bid sales whose harvests were completed in fiscal years 1980 and 1981. (See table, p. 9.) We compared the revenues actually received from the winning bidders with the revenues which would have been received from the losing bidders if their bid rates had been applied to the harvested volumes. On 33 sales more revenues would have been returned to the Service if the highest of the losing bids had been selected. On 77 sales we could not determine the impact on sale revenues because competing bidders skew bid the same species and/or the species on the sale were harvested in about the same proportion as the Service's presale volume estimates. On the remaining nine sales, the Service received greater revenues because the skewed bid species was overcut. The net revenues forgone through skewed bid sales on the 42 sales for which there was an impact amounted to \$1.9 million.

Revenues Forgone Through Awards to Skew Bidders

<u>National forest</u>	<u>Total skewed bid sales (notes a &amp; b)</u>	<u>Sales in which revenue was forgone (note c)</u>		<u>Sales in which revenue was gained (note d)</u>		<u>Net revenues forgone</u>
		<u>No.</u>	<u>Amount</u>	<u>No.</u>	<u>Amount</u>	
Rogue River	17	2	\$ 2,338	1	\$ 18,305	\$ (15,967)
Siskiyou	21	4	80,709	2	475,237	(394,528)
Lassen	23	10	1,290,037	2	133,342	1,156,695
Mendocino	6	4	221,757	0	0	221,757
Shasta-Trinity	22	5	849,176	2	247,638	601,538
Stanislaus	3	3	164,089	0	0	164,089
Tahoe	7	2	95,428	0	0	95,428
Idaho Panhandle	<u>20</u>	<u>3</u>	<u>149,517</u>	<u>2</u>	<u>55,297</u>	<u>94,220</u>
Total	<u>119</u>	<u>33</u>	<u>\$2,853,051</u>	<u>9</u>	<u>\$929,819</u>	<u>\$1,923,232</u>

a/Skewed bid sales of \$2,000 or more whose harvests were completed in fiscal years 1980 and 1981.

b/Skewed bid sales are defined as sales in which the winning bidder placed the entire bid premium (the difference between the Service's appraised rate per thousand board feet and the bid rate) on a single species.

c/Sales in which the highest of the losing bids would have returned more revenue to the Service given the actual timber volumes harvested.

d/Sales in which the skewed bid species was harvested in greater proportion than the sale as a whole, resulting in the winning skewed bid returning more revenue to the Service than any of the losing bids would have if the same timber volumes had been harvested.

We did not attempt to estimate the total amount of forgone sales revenues for the Service as a whole.

HARVESTING METHODS ON SKEWED  
BID SALES AFFECT REVENUES

Skewed bidding with its overvaluation of a particular tree species increases the possibility that buyers may seek to minimize payments through their harvesting methods. For example, failure to harvest a few skewed bid trees can reduce sales revenues substantially.

Rather than prohibiting or directly controlling the practice of skewed bidding which causes such problems, the Service has devoted more time to managing skewed bid timber sales. Service records do not identify separately the additional administrative costs. However, timber managers at the national forest level told us that from 5 to 10 percent more administrative time is required for harvest supervision on skewed bid sales. The

Service's timber managers said that they do not have sufficient personnel to adequately supervise the harvest of the skewed bid sales, where a single tree may represent sales revenues of thousands of dollars.

The Federal Government's financial risks are multiplied on skewed bid sales where, by failing to harvest skewed bid trees or causing excessive breakage during harvest, a purchaser can reduce the volume of skewed bid timber harvested and thereby reduce the amount payable to the Service. This means the Service must devote more time to supervising harvest activities to protect the Government's interests.

At the Mendocino National Forest, the forest supervisor considered the added risks to the Government on one skewed bid sale so great that special administrative measures were taken to ensure that full value was received for the skewed bid species, sugar pine. In this sale, which was in the initial stages of harvest at the time of our review, sugar pine which generally sells for about \$200/MBF was skew bid at \$4,100/MBF. Some of the special administrative measures the supervisor took or planned for this sale were as follows.

- Each sugar pine was located, recorded on a map, marked with a different color paint, and assigned a number.
- A sale administrator was assigned to observe the cutting of as many of the sugar pine as possible.
- Each sugar pine stump will be examined after cutting to assure that all merchantable segments of the trees are harvested.
- Special attention will be given to the scaling (measurement) of sugar pine for payment.

Service timber managers told us that they are concerned about the opportunities a purchaser has to damage skewed bid trees during harvest and thereby lessen their merchantability. They said that trees can be cut so as to fall on other trees or rocks. Trees can also be damaged by tractors or be buried or left in the forest. For example, timber staff on the Stanislaus National Forest described one sale where skewed bid cedar trees were felled across downed trees and small cedar logs were left in slash (debris) piles. Service staff had to scale the logs on the ground in the forest because snow prevented their removal and normal scaling. On another Stanislaus sale logs were left in the forest over the winter, subjecting them to additional defects from exposure (rot). Again, the Service scaled the logs on the ground in the forest.

Service staff told us that additional surveillance is needed for skewed bid sales but cannot always be provided because of other demands on staff time. Some breakage is normal and expected

in all timber sales. Timber managers said that proving trees are damaged intentionally is usually impossible unless the purchaser is caught in the act. Even then, purchasers can argue that the breakage was unintentionally caused by inexperienced loggers.

The Service has allowed some skew bidders to harvest timber on a species-by-species basis. When the Service authorizes this practice, sales management problems such as slash disposal and the timing of reforestation are increased. More importantly, purchasers have the opportunity to leave high-value skewed bid trees until the last stage of the sale, delaying the receipt of sales revenues and increasing the possibility that high-value trees will be left unharvested. The following cases illustrate problems the Service has experienced in this area. These sales are not classified by the Service as completed and are not included in our table on page 11.

1. Paradise sale/Stanislaus National Forest

The purchaser, who was in default on this sale at the time of our review, had harvested over 94 percent of the timber volume but left about two-thirds of the skewed bid incense-cedar, representing about \$600,000 in sales revenues. The Service allowed the purchaser to delay harvesting the incense-cedar because he was completing a new cedar mill. He subsequently refused to complete harvesting of the cedar, citing financial hardship because of poor timber market conditions. The Service has been unsuccessful in its attempts to resell the remaining timber and a damage claim against the purchaser has been referred to the Department's General Counsel.

2. Green Fox sale/Rogue River National Forest

The purchaser, who was in default on this sale, had harvested about 82 percent of the Douglas fir volume but had not harvested over two-thirds of the skewed bid white fir, representing \$232,000 in sales revenues, or more than half the sale's total value. The Service allowed the purchaser to harvest the Douglas fir first because those trees were larger and less defective than the white fir. The purchaser discontinued harvesting, claiming financial hardship due to timber market conditions. The Service hopes to resell the remaining timber.

3. Flat Junction sale/Rogue River National Forest

This sale, awarded in April 1980, has a November 1984 completion date. Through November 1980 the purchaser had harvested only about 4 percent of the skewed bid white fir volume and 75 percent of the other species. The remaining white fir had a bid value of \$3.8 million which represents 72 percent of the sale's total value. According to the Rogue River timber manager, the purchaser was allowed to harvest the other timber species first because the company was experiencing financial difficulties. The Service is optimistic that because of the sale's November 1984

completion date, the purchaser will be able to complete the sale even though no trees were harvested during 1981 and the purchaser defaulted on payment of bond obligations.

FOREST SERVICE HAS TRIED  
TO CONTROL SKEWED BIDDING

Although skewed bidding affects the Service's three western regions, most Service efforts to control the practice have occurred at the individual region and forest levels rather than programwide.

Service timber sales policy permits regions to tailor their timber sales programs to local needs. The three western regions have modified their sales procedures to try to control skewed bidding. The regions have all restricted bidding on minor species by setting various minimum volume criteria. In addition, region 5 has established a bid premium distribution procedure which limits the amount of bid premium that can be placed on a single species, and region 6 no longer allows any of the bid premium to be placed on Port Orford cedar unless it exceeds 25 percent of the total volume offered on the sale.

Individual national forests made some of these changes in sales procedures before the changes were adopted by the regions. As early as 1972 individual national forests and several timber purchasers in California affected by skewed bidding urged changes to Service bidding policies that would prohibit skewed bidding. At that time regional timber management was reluctant to make major policy changes because they believed that the adverse effects of skewed bidding had not yet been demonstrated and that the problem was a local, rather than a regionwide, issue.

The three western regions had changed timber sale procedures as follows.

1. Region 5 had made two changes.

--In 1974 region 5 permitted individual national forests to limit bidding to species with more than 10 percent of the volume offered for sale.

--In 1980 region 5 required national forests to use a limited form of proportional bid premium distribution on some sales. This procedure limits the amount of bid premium that can be placed on a single species, but substantial skewed bidding is still occurring.

2. Region 6 had made the following changes.

--In 1979 region 6 directed individual national forests to limit bidding to species with more than 25 percent of the volume offered for sale. In addition, the forests were encouraged to group species so they would be biddable under the 25-percent rule.

--In 1980 region 6 directed the Siskiyou National Forest to make a complete presale count of Port Orford cedar and to specify a fixed price for the cedar if skewed bids continued on the species. As the tables on pages 9 and 10 show, Siskiyou had a lower percentage of skewed bid sales awarded than harvested in fiscal years 1980 and 1981. The harvested sales had been awarded in earlier years.

3. Region 1 experienced skewed bids in the late 1970's. It had made one change. In 1978 it encouraged individual national forests to limit bidding to species with more than 10 percent of the volume offered for sale.

We found that the restriction of bidding to species with more than 10 percent of the volume would have had a limited effect on the 42 skewed bid sales we reviewed where revenue was affected. (See p. 11.) On 34 sales where skewed bid species represented more than 10 percent of the volume, we found that the Federal Government's net forgone sales revenues were \$1.4 million. On 17 of these sales where the skewed bid species represented more than 25 percent of the volume, we found that the Government's net forgone sales revenues amounted to only \$110,000.

Service representatives generally agreed that the procedures they had adopted were not the most effective ways to stop skewed bidding and that stronger measures are needed, such as higher minimum biddable volumes or a full premium distribution of the bid premium among all the species. Although only region 5 had implemented procedures to limit the amount of bid premium on a single species, other regions were considering this method to control skewed bidding. Region 5 limits the bid per MBF for a species to the species' proportionate rate 1/ plus the average bid premium 2/ for all species offered in the sale. Region 5 also allows the winning bidder to redistribute his bid among the species after sale award as long as the total sale value remains the same and the premium placed on a species does not exceed the limitation. However, although the wide variation among species bid rates is lessened, purchasers are still able to place overbids of \$1,000 and more on a single species. For example, on two region 5 sales in 1980, skewed bids of \$1,400/MBF were received on species which the Service appraised at under \$110/MBF.

---

1/A species' proportionate rate is its appraised rate multiplied by the quotient obtained from dividing the average bid rate per MBF for the total sale by the average appraised rate per MBF for the total sale.

2/The average bid premium is the difference between the average bid rate per MBF for the total sale and the average appraised rate per MBF for the total sale.

Because this policy had only been in effect since 1980 and because few of these sales had been completed, we were unable to review the policy's effectiveness. In addition, because the winning bidders are allowed to redistribute their bid premiums after sale awards, it is impossible to compare the bids to determine whether the correct bidders were awarded the sales.

#### HOW OTHER TIMBER SELLERS CONTROL SKEWED BIDDING

State forestry departments in Washington and Oregon changed their sales policies to control skewed bidding over 15 years ago. More recently, both the California State forestry department and the Bureau of Indian Affairs' Sacramento Area Office also changed their policies. Officials in these agencies and the Bureau of Land Management told us that the policies they have adopted controlled skewed bidding on their timber sales. These policies are as follows.

- The Washington State Department of Natural Resources allows bidding only on a species representing 60 percent or more of total sale volume.
- The Oregon State Forestry Department limits bidding to one major species.
- The California State Division of Forestry allows bidding only on species representing at least 25 percent of total sale volume.
- The Bureau of Indian Affairs' Sacramento Area Office allows bidding only on species representing 25 percent or more of total sale volume or on minor high-value species.
- The Bureau of Land Management sells its timber on a lump-sum tree-measurement basis. Logs harvested are not scaled for payment. The amount paid is the total amount bid at time of sale.

#### POSSIBLE SALE TECHNIQUES TO CONTROL SKEWED BIDDING

Among the techniques that timber sellers have used to minimize the adverse financial and operational effects of skewed bidding on timber sales are (1) requiring that the bid premium be spread proportionally among the species being sold, (2) restricting bidding to specific species whose volumes meet or exceed an established minimum percentage of total sale volume, and (3) using the lump-sum tree-measurement sales method. We believe that under conditions like those existing in the Service's western regions, the proportional distribution of the bid premium among all species would be the most effective measure and have the fewest drawbacks at the present time.

As we previously discussed, region 5 uses a form of proportional bid premium distribution among the species sold on some of its timber sales. However, the distribution is not a full proportional distribution and purchasers can still place substantial bid premiums exceeding \$1,000 per MBF on a single species. (See p. 15.) A full bid premium distribution among the species being sold in proportion to the Service's appraised sale value would provide little leeway for bidders to manipulate the bidding process to the Government's disadvantage and would eliminate the possibility of skewed bidding. It would also eliminate any doubt as to the high bidder on a sale; simplify the bidding process because the sale would be bid in total rather than by species; reduce the financial risks during harvest because payment for the various species would better reflect their relative worth; and be less confusing than the present premium distribution used in region 5. To value timber for tax purposes, both the Internal Revenue Service and the California State tax agency use a form of proportional bid distribution to average any overbid among the species on a timber sale.

Restricting bids to one species or to species exceeding 25 percent of the total estimated volume on a sale does not provide as much control over skewed bidding. Under the 25-percent rule sales revenues can still be forgone because of uncertainty as to the high bidder on a sale. (See p. 15.) Also, financial risks during harvest remain because the bid premium is not distributed to all species on the sale. A purchaser has financial incentives to harvest one species over another as is reflected by the disparity in the relation of sale prices to the Service's appraised values for the species being sold. For example, one species may be sold at the Service's appraised value while another is sold at five times the appraised value.

The lump-sum tree-measurement sales method the Bureau of Land Management uses is also used by the Service primarily in its eastern and southern regions. Under this method the purchaser basically agrees to pay a specific amount for the timber in a sale area based on the Service's estimate of the merchantable (usable) volume of wood in the trees before they are harvested. Because the sale is on a lump-sum basis rather than by species, skewed bidding is eliminated.

The Service's national policy encourages the use of the tree-measurement sales method, but the timber industry has been opposed to any increased use of the method and implementation in the western regions has been limited. Industry has questioned the Service's ability to accurately estimate the volume of usable wood in old-growth timber stands in the West because of the more defective timber and the turnover of Service personnel. Industry also claims prospective purchasers will incur added costs checking the sale areas to assure the accuracy of Service volume estimates.

We previously reported in 1975 (RED-75-396) that the Service does not have well-documented evidence to settle the question of

effectiveness and costs of tree-measurement method timber sales in the West. We recommended that the Service conduct test sales to assess and document the benefits from the tree-measurement method. Some test sales have been made.

In region 5, Lassen National Forest has an experimental sales program offering timber on a tree-measurement basis. The region has established sale preparation standards that a tree-measurement sale has to meet before the sale is advertised. As of the time of our review, Lassen had been successful in satisfying the standards, and it planned to convert completely to tree measurement over a "short time period," according to regional officials.

### CONCLUSIONS

The use of skewed bidding is causing costly problems for the Service timber sales program. During fiscal years 1980 and 1981, about \$1.9 million in sales revenues was forgone on timber sales closed on 11 of the Service's western national forests, and the Service must devote administrative resources to deal with the harvest management problems caused by skewed bidding. The Service could reduce these problems by modifying its sales procedures to control skewed bidding.

Skewed bidding can be controlled in several ways. The best way at present would be to modify the Service's bid process where by a sale would be bid on a total lump-sum basis and any bid premium would be distributed proportionally among all tree species in the sale. The other methods either do not provide as effective a control of skewed bidding or involve some drawbacks. For example, improving the Service's presale volume estimates would reduce the incentive to skew bid but may require additional staff time. Limiting bidding to major volume species has merit but may result in merely moving the skew to a major species with the financial risks during harvest remaining. The tree-measurement sales method would eliminate skewed bidding, but the industry's concerns about its use on old-growth western forests remain unresolved. Perhaps the experimental sales program on the Lassen National Forest will show tree-measurement sales to be the long-term solution to control skewed bidding.

Timber harvesting on a species-by-species basis on skewed bid sales compounds the sale management problems. Species logging permits the purchaser to harvest the high-value trees on the sale last, thus delaying the receipt of sale revenues. Species logging also increases the risk that high-value trees will not be harvested and efforts to resell the timber may be unsuccessful in recouping the loss. Because of the risk, species logging should not be permitted on skewed bid sales.

RECOMMENDATIONS TO THE  
SECRETARY OF AGRICULTURE

We recommend that the Secretary of Agriculture direct the Forest Service to control the use of skewed bids on future timber sales. In the short term, for example, the Service could adopt a bid premium distribution procedure whereby the total bid premium on a timber sale would be spread among the species offered for sale in proportion to the volumes and values of the individual species. In the long term, the Service could require adoption of the fixed-price, lump-sum, tree-measurement sales method once industry's concerns about this method are resolved to the Service's satisfaction.

We also recommend that to reduce the adverse effects of past skewed bid sales, the Secretary require the Service to prohibit logging on a species-by-species basis on skewed bid sales.

AGENCY COMMENTS

The Forest Service said that our report fairly and accurately treats the skewed bidding issue. The Service agreed that national direction is appropriate to control the use of skewed bidding on future timber sales and to reduce the adverse effects of past skewed bidding on existing sales. (See app. II.)

Also, subsequent to receipt of the agency's written comments, the Service's Director of Forest Management told us that the Service plans to issue instructions to its field staff which will require concurrent harvesting of all species on skewed bid sales.

PRIVATE TIMBER COMPANIES, TIMBER INDUSTRY TRADE  
ASSOCIATIONS, LUMBER MILLS, AND LOGGERS WE CONTACTED

<u>Name</u>	<u>Location</u>
Associated California Loggers	Sacramento, Calif.
Carl Pew	Greenville, Calif.
Erickson Lumber Co.	Maryville, Calif.
Louisiana-Pacific Corp.	Standard, Calif.
Sierra Pacific Industries	Arcata, Calif.
Sierra Pacific Industries	Susanville, Calif.
Snider Lumber Co.	Turlock, Calif.
Soper-Wheeler Co.	Strawberry Valley, Calif.
Summit Contractors	Red Bluff, Calif.
Western Timber Association	San Francisco, Calif.
William Prater	Clipper Mill, Calif.



United States  
Department of  
Agriculture

Forest  
Service

Washington  
Office

12th & Independence SW  
P.O. Box 2417  
Washington, DC 20013

Reply to: 1420

Date: NOV 18 1982

Mr. J. Dexter Peach  
Director, Resources, Community and Economic  
Development Division  
General Accounting Office  
Washington, D.C. 20548

Dear Mr. Peach:

We have reviewed the GAO draft report entitled "Skewed Bidding Presents Costly Problems for the Forest Service Timber Sales Program." The report is well done and treats the skewed bidding issue fairly and accurately.

We agree that National direction is appropriate to control the use of skewed bids on future timber sales and to reduce the adverse effects of past skewed bidding on existing sales.

The USDA Board of Contract Appeals has recently supported the Forest Service practice of incorporating the new log scaling rules into existing pre-1979 timber sale contracts as a condition of sale extension. This practice will continue. [See GAC note.]

Thank you for the opportunity to provide comments on this draft report.

Sincerely,

R. M. Housley  
Acting Chief



FS-6200-11 (6-80)

GAC note: In our draft report we proposed that to reduce the adverse effects of past skewed bid sales, the Secretary of Agriculture require the Forest Service to incorporate new log-scaling rules into existing pre-1979 timber sale contracts as a condition of any future sale extension. Because the Forest Service has taken action in keeping with our proposal, this matter has been deleted from the final report.

(021002)





**AN EQUAL OPPORTUNITY EMPLOYER**

**UNITED STATES  
GENERAL ACCOUNTING OFFICE  
WASHINGTON, D.C. 20548**

**OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300**

**POSTAGE AND FEES PAID  
U. S. GENERAL ACCOUNTING OFFICE**



**THIRD CLASS**

24241